

W9TE

March

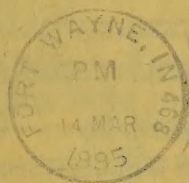
1995

HAMSPLATTER



**FORT WAYNE
RADIO CLUB
Fort Wayne, Indiana**

The Fort Wayne Radio Club
P O Box 15127
Fort Wayne, IN 46885



To:

K90MA/KA9YYI
JIM & ANNE PLIETT
16702 WAPPES RD.
CHURUBUSCO, IN 46723



Do you have an interesting article, news item, or cartoon which you can contribute to the Hamsplatter? Do you have some spare equipment collecting dust that you want to sell? If so, please contact me, Kris, KF9AW. My day phone is 487-3286, evenings 486-7324. Packet messages can be directed to me on 144.91, cluster KR9U or on 144.97, W9INX.

1994 MEMBERSHIP DATA: (Give this form to the treasurer at any FWRC meeting or mail to address below)

NAME _____ CALL _____ CLASS: N T G A E

MAIL ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

HOME TELEPHONE # () _____ WORK TELEPHONE # () _____

SHALL WE LIST YOUR ADDR/PHONE# IN MEMBER ROSTER? Y N ARRL MEMBER? Y N

MEMBERSHIP TERM:	(JAN-DEC)	(July 1-Dec 31 ONLY)	
FAMILY MEMBERSHIP: _____	\$21.00/yr	\$10.50/yr	immediate family(list all calls)
REGULAR MEMBERSHIP: _____	\$15.00/yr	\$7.50/yr	licensed member
STUDENT MEMBERSHIP: _____	\$ 6.00/yr	\$3.00/yr	full time student
ASSOCIATE MEMBER: _____	\$15.00/yr	\$7.50/yr	unlicensed member
YOUR CHECK NUMBER # _____ PLEASE PAY BY CHECK, IT'S EASIER FOR BOTH OF US!			

PLEASE RENEW YOUR ARRL MEMBERSHIP THROUGH THE FORT WAYNE RADIO CLUB, INC.
ITS EASY! SEND YOUR ARRL RENEWAL FORM AND A CHECK (payable to FWRC) TO THE CLUB.

FORT WAYNE RADIO CLUB MEMBERSHIP HANDBOOK (CIRCLE THIS PARAGRAPH TO RESERVE ONE!)
Provided at no cost to club members, this handbook provides a full set of information about present and past Club activities, events, and functions. The handbook is available in a clear cover binder, and is upgradeable by easy insertion of new pages into the three-hole binder.

The Hamsplatter

Is published monthly by the Fort Wayne Radio Club,
PO Box 15127, Ft. Wayne, IN 46885

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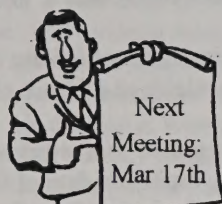
The Hamsplatter

A Newsletter for the Fort Wayne Radio Club Members

Vol XXI Issue 3

March 1995

Carl's Corner



Here we are MARCHing toward warmer weather with all our thoughts toward new tower construction and antenna projects. All of the problems associated with intermittents, missing elements, too small of an antenna, and insufficient tower height can now finally go away. During all this feverish activity however, one should never lose sight of safety and common sense. Plan ahead, be aware of power lines, consider all possibilities (even Murphy), and ask for assistance if needed.

This month we will be renewing the Fort Wayne Radio Club W9TE license, and it is an opportune time to remind everyone to check the expiration dates on their personal licenses.

Don't forget to write down your Fort Wayne Radio Club Anniversary commemorative event suggestions. They will be collected at the March meeting, or you can give them to any club officer. The winner will receive a 910.250 MHZ ATV Antenna plus a Rabbit ATV downconverter. Our board of directors will judge the entries, and the lucky winner will be announced at the April club meeting.

AUTOPATCH CHANGES:

The 91 Autopatch was out of service the week beginning 2-19-95, during the installation of a new switchboard at I&M. After our autopatch was reconnected, a preceding "9" was required to access the outside line. As of this writing this is still required, however the switchboard will soon be reprogrammed to provide an automatic "9". Hopefully, by the time you read this we will have returned to the 7 digit * dialing sequence. The # key will always terminate the call. Don't forget to ID. As a future convenience, I am considering issuing speed dial codes for frequently called numbers.



Fort Wayne
Radio Club



Help! The committee to redesign the FWRC Banner is off and running, with Cliff (N9MKB) having a firm grip on the helm. Anyone with design ideas, or a good place to have the work done, please pass the information along to Cliff. This is it!! Your chance to become informed and return home having learned more about various facets of Amateur Radio. The program for this month's FWRC meeting is entitled "Here's Elmer" and will feature a panel of knowledgeable individuals who will provide answers to questions on subjects ranging from Antennas to Zeros (Ones included). No prerequisites required, therefore no CEU points will be awarded. Come on out and bring plenty of questions, Friday March 17, 7:30 at the Salem Church (Lake Avenue, Fort Wayne) Clubhouse.

73's Carl (N9NRO)

Ladies Auxially to Organize at March Meeting

FWRC ladies: licensed and non-licensed - you are invited to the ladies axially organization meeting. We will meet at the March regular meeting.

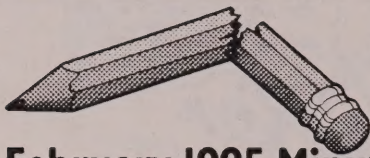
- Jean Anderson

N9PXG

Spring Code & Theory Classes

Classes will start on Monday March 20 at 7pm at the ITT school on Coldwater Rd - next to Red Lobster. They will meet every Monday and Thursday evening, 7-9pm for seven weeks. Morse code will be taught during the first hour (bring paper and pencils) and Novice and Technician Theory will be taught during the second hour. The book will be "Now You're Talking" and is available at any Radio Shack store.

For Sale - Alinco DR1200T 2 meter data radio.
\$200 obo - Bill Hall 485-3995



February 1995 Minutes

The following are the recorded minutes of the Fort Wayne Radio Club:

The February meeting of the Ft. Wayne Radio Club was held at the Salem Church of Christ on 17 February, 1995 and started about 19:30 hours. Approximately 60 persons were in attendance. The meeting was brought to order by president Carl Rittenhouse.

The minutes of the January meeting were read and after one correction, they were approved.

Scott Sides gave the treasurers report. He reported that we had received 130 dues payments for the 1995 club year as of this meeting.

Scott gave a report on the proceeds from last months auction. Total income from sales was \$1648.50 and the yield to the club treasury was \$969.23. This significant income to the club treasury was primarily due to the fact that the estate of Bill Sweet (KC9MB) donated half of the proceeds from his equipment to the club.

Jim Pliett reported on the results of the last fox hunt, held on the fifth of February (see fox hunt article for results and standings - ed.).

Carl noted that club handbooks are available to club members. See Cliff Shreve if you need one.

Carl reported that the copy machine donated to the club was examined and it was determined that it was not economically feasible to repair it. We will keep our eyes open for another opportunity of a donation of a machine to the club.

Carl announced that 1995 is the FWRC's 75th year. The Board of Directors thinks that some type of commemorative event should take place to mark the anniversary. Hence Carl described a commemorative event suggestion contest. He asked club members to write down their ideas/suggestions for a one time event and get it to him by not later than the end of the march meeting. The Board of Directors will review the entries, pick a winner and award a prize of a 910 MHz ATV receive antenna to the winner.

Cliff Shreve is acting as the chairman of a club banner redesign committee. He is looking for a few more members that have an eye towards or interest in design. His goal is to design and fabricate a new club banner in time for the spring banquet. If interested, contact Cliff.

Carl reported that there has been significant maintenance activity at the repeater site lately, especially by Jim Pliett. New controllers have been installed in the .76 and the .91 machines, the sensitivity of the .91 machine was improved, the .91 diplexers were cleaned and retuned, a courtesy tone was added to the .76 machine and it's squelch tail was eliminated.

Note, the new controller for the .91 (auto patch) machine requires a different auto patch access procedure:

1. Key up and enter the telephone number you wish to call followed by "**".
2. Id your station (while your doing this, the system is dialing your number).
3. You should then either hear the phone ringing or a busy signal.
4. Complete your call, (calls should be kept to 5 minutes or less).
5. After you have completed your call, id and then enter a "#".

Printed instructions for use of the auto patch will be made available at a future club meeting.

Carl suggested that everyone take a moment and check the expiration date of their license. It's easy to loose track of when it expires, but there is certainly no sense in letting it happen.

Carl showed a set of ATV output coverage footprints that were produced by K&L through the efforts of Jim Pliett. The plots depict the expected signal strength contours of the ATV output for various receive antenna heights. We plan to make copies of the plots for interested club members.

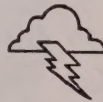
Carl was asked if any plans were afoot to create a new club QSL card commemorating the Club's 75th year. He noted that it will be discussed at the upcoming board of directors meeting.

The February program consisted of presentations on Amateur Radio and emergency preparedness/emergency communications, and on the national traffic system by Howard Pletcher and Jim Sellers respectively.

Carl announced that the March program will consist of a "Elmer's" panel of experts. If you have any questions related to any aspect of Amateur Radio, come to the March meeting and chances are that you will be able to get it answered by one of the panel members.

The meeting adjourned about 21:25 hours.

Respectfully submitted, Al Burke, WB9SSE



Lightning Fast Licensing, Courtesy of Electronic VEC Filing and the FCC

As earlier reported in the Hamsplatter (via W5YI Report) VE teams can now file test results electronically. The FCC recently upgraded its licensing computer system and the marriage of these two events has been rather shocking: Anyone recall how long it took you to get your first ticket through the mail? For most of us, the wait seemed to take forever, but actually averaged 4 to 5 months. With the in-rush of no-code Tech licenses in the past three years, the waiting time took up to 7 to 8 months. With the new system in place, recent reports have ticket arrival times at less than 2 weeks (my upgrade license arrived 10 days after the test -ed)!!!

OTC - Philo Farnsworth (continued)

Phil tried to keep quiet his progress with the television. The backers called a press conference at the lab for the 1st Sept 1928. On 3 Sept 1928 the San Francisco paper carried the headline, "S.F. Man's invention to Revolutionize Television." The press on the East Coast had carried reports mostly from Bell Labs, Westinghouse and Jenkins Television Co. Baird TV of London was selling make-it-yourself kit TV receiver Kits. All the above were mechanical methods.

Phil was told to expect a visit from Dr Vladimir Zworykin of Westinghouse. Phil's journal dated 19 Apr 1930 entry, "Dr Zworykin spent three days in the lab on the behalf of Westinghouse, he had been hired by David Sarnoff to work for RCA. He did stop at Westinghouse en route to the RCA Labs in NJ, but only long enough to have his former helpers build a copy of the Farnsworth Image Dissector, exactly as Phil and Cliff had shown him. Dr Zworykin took the new tube and reported to RCA.

Phil's notes 10 May 1930 : Two demonstrations on Friday to Mr Porter of RCA and Lt Highleyman of USN. Not long after Mr Porter's visit, Phil left for Washington to testify before a committee investigating monopolistic practices in the Radio and Television industries. Who should appear at the Lab but David Sarnoff himself for a demonstration. He told George he didn't see anything that RCA would need to introduce television. He later offered \$100,000.00 to buy the Co. and Farnsworth. Next they were approached by Philco with an offer which was accepted. A lab was built on the top floor of the Old Philadelphia Storage Battery Plant.

While the transmitter and tower were being constructed, they applied for an experimental license and received the call W3XE. Protests were filed by RCA, Bell Labs, Jenkins TV, Western Union and the fast growing Radio Amateur Assn. Once broadcasts were being made, protest calls were received. One complaint of a more serious nature was due to Phil clandestinely tapping into RCA's TV signal, when RCA began picking up the Philco/Farnsworth transmissions, an ultimatum was delivered to Philco: either it dumped the Farnsworth Co. forthwith, or its license to use RCA's patents would not be renewed. So the agreement with Farnsworth was terminated. With George's fundraising in NY, the boys soon had a well operating lab on 127 East Mermaid Lane.

In a brief on behalf of Zworykin, RCA contended that no boy of fifteen with a background such as Philo's would be capable of conceiving such a technically advanced art as required for electronic television. When questioned by Don Lippincott about his early disclosures, Phil told him about his Chemistry teacher, Justin Tolman. The only other person in whom he had confided in was his father who was now dead.

Mr Tolman was finally located in Salt Lake City, Utah, where he had been teaching. Arrangements were made for Samuel Smith, the RCA Attorney and Don Lippincott, Farnsworth patent attorney to obtain Mr Tolman's deposition in Salt Lake City.

Don located Mr Tolman and the following conversation took place: Lippincott: "Are you Justin Tolman?" Mr Tolman: "Yes I am." Lippincott: "Do you remember a student in Rigby, Idaho by the name of Philo Farnsworth?" Mr Tolman: "I surely do: brightest student I ever had." Lippincott: "My name is Don Lippincott, and I'm a patent attorney representing Mr Farnsworth. His camera tube, the Image Dissector, is in interference in the Patent Office. Do you remember him discussing it with you?" Mr Tolman: "Yes I do." Lippincott: "Will you come to this address on the back of my card ?" and he then departed. Don Lippincott had no further conversation so he could not be accused of priming the witness."

The next morning at the meeting of the Patent Examiners Mr Tolman remembered Phil very well. He acquainted all of his subsequent classes with this unforgettable student. He remembered the drawings Phil had made on the blackboard, then took from his pocket a well-worn sheet torn from a small note book where on Phil had sketched his Image Dissector Tube, saying this was made for me by Philo early in 1922.

After weeks of testimony in Washington, a forty- seven page ruling number 64,027 gave priority to Farnsworth on the grounds that Zworykin's 1923 tube was inoperable. Despite losing the 1934 case, RCA continued to challenge other components of the Farnsworth patent portfolio. RCA continued to attack the small firm.

1936 was a very productive year for Phil. He filed and received 22 patents. Nine were on new multiplier tubes. The multiplier tube created considerable excitement among fellow engineers. In effect a one-tube radio transmitter. Phil sent one to a friend Ralph Heintz in San Francisco. Ralph set one up in his plant (Heintz & Kaufman) and invited a group of technical men and university professors in for a demonstration. The tube seemed cold and lifeless, but when Ralph taped a light bulb to a yard stick and held it near the tube, it lit up to full brightness. Ralph sent a message to Phil. "To Phil Farnsworth Greetings This is the first message transmitted by your Electron Multiplier Tube." It was relayed by a Dollar Steamship in the south seas to Australia, on to several European Stations, and an Arctic outpost reaching Phil in Philadelphia in the morning.

A Financial expert at Kuhn, Loeb & Co. suggested floating a stock issue. A search was made for an executive capable of taking charge of the New Farnsworth Radio and Television Co. ended with the hiring of Edwin Nicholas, previously the head of the licensing division of RCA. The day before Hitler invaded Czechoslovakia and the stock market plunged, but the stock issue was secure. The next objective was to locate a manufacturing facility. The Capehart in Fort Wayne and Marion IN were purchased. Ed Martin was hired from the Patent Department of the Hazeltine Co. Meanwhile, in July 1938, Albert Rose and Harley Iams, two RCA engineers, applied for a patent for a revolutionary new type of camera tube whose principal feature was a low-velocity scanning beam, this seem to point the way of the future. RCA named it, the Image Orthicon.

OTC - Philo Farnsworth (continued)

Not long after RCA applied for a patent on the tube, they were notified that all of the novelty in their Orthicon tube was covered by Farnsworth's Patents.

The research lab moved to Fort Wayne in April 1939. It was an important year for television. Farnsworth had invested around one million dollars. RCA invested over thirteen million. David Sarnoff felt the questing glare of his board of Directors. Sarnoff could no longer postpone the advent of commercial TV, and a date of 30 Apr 1939 the opening of New York World's Fair, was chosen. Philo was listed as one of "America's Top Ten Young-Men". Near the end of 1939 Philo and his family moved to Fort Wayne. Only one matter of business remained unfinished, a license with RCA.

In Oct 1939 the struggle for TV ended. Before signing the license, Mr Schairer reminded the Farnsworth group what a historic agreement he was about to sign - the very first patent royalties that obligated RCA to pay royalties to another Company. At that time he had tears in his eyes. Farnsworth's patents had seven years to run.

At the age of 15 Philo's son was admitted to MIT during the period Philo was at his hideout near Fryeburg Maine. In August of 1945 after the Atomic bombs were used in Japan, which ended the war, Philo became interested in developing atomic power, as expressed by Einstein's formula $E=mc^2$. The balance of Philo's life was spent working on that problem. This was Philo's final project at the Fort Wayne location.



Allen County Fox Hunt

The February 5th foxhunt was held on a frigid sunny day (5-10 degrees). Vick, N9GK and Clark, WD9GJF were hidden in a cul-de-sac in a housing edition off of Trier and Hobson roads. The foxes had a momentary black-out for 15 minutes when they blew the fuses on their mobile radio. After a quick drive home, they were back on the air and transmitting. At the 1 hour, 24 minute mark, Jim KF9VZ, Dave WB9UNL, and K9QWC rolled up and bagged the foxes. 2nd - K9OMA & KA9YYI, 3rd - N9AVR & N9MKB, 4th - KA9WEO, 5th - KB9DOP & N9KKG, 6th - KB9DOT & KB9DOS, 7th - KF9AW & N9XKM, and 8th - KB9IWM & N9ZTD

The March 5th foxhunt was warm and drizzly and the foxes Jim KF9VZ, Dave WB9UNL and K9QWC were parked in an alley behind Pro Bowl West, of the Gateway shopping center. If you see the foxes walking around with their thumbs up, it's not because they're looking for a taxi or checking wind direction and velocity - they're a little sore. It seems there was a problem with the microphone button contacts, and the only way to get the radio to transmit was to press the button with as much force as possible. Hope you guys ate your Wheaties! The first hounds on the scene were Carl N9NRO and Dave N9LOV. 2nd - N9GK & WD9GJF, 3rd - K9OMA & KA9YYI, 4th - KB9DOT & KB9DOS, 5th - N9SCD, 6th - N9MKB & N9AVR, 7th - KA8WEO & friend and 8th - KF9AW & N9XKM.

The next FWRC foxhunt is Sunday, April 2nd, at 1:00pm EST at the Allen County Fairgrounds. The fox will be on 146.43 MHZ.

The Whitley County Amateur Radio Club will be sponsoring a 440 MHZ foxhunt on Saturday, April 1st. The frequency will be 446.00 MHZ starting at 1:00pm. The starting point will be at the corner of State Road 109 and US 30 in the Aldi's parking lot. The hunt will be confined within Whitley County. This will be the first foxhunt held on 440 MHZ in this area, and will help develop understanding of and hopefully expand our use of the band within Whitley County. The rules will roughly follow the FWRC format, except that mileage will not be counted in the score. For further information, call Roger McEnterfer at (219) 691-3009.

New Haven Proposes Antenna Height Restrictions

You've been hearing about it around the country, now it's happening in our own back yard. According to Jim Chapman in a January 1st Journal Gazette article, the City of New Haven (plan commission) is proposing to restrict antenna and tower heights to no more than 130 feet for agricultural, commercial, and industrial zoned areas, and no more than 60 feet in residential areas for Amateur and Citizens Band radio stations. This was precipitated last year when a 285 foot GTE Mobilnet tower, constructed on industrial zoned land, was protested by residents near the site. City officials were of the opinion that the diverse mix of zones were responsible for the conflict and subsequent need for new ordinances. The residents who protested the tower live in "commercial" zoned land, but based their protest on the opinion that their land more resembled "a neighborhood". At the time of this writing, the ordinance has not yet been passed. Once it does, however, any tower exceeding the zoned heights will require a variance and public hearing. Your right as an amateur radio station operator allows for towers up to 250 feet, unless it is constructed in an airport traffic area. New Haven airspace, to the best of my knowledge, is not used for airport traffic patterns nor approaches.



Solar activity is forecasted to remain unstable with active geomagnetic conditions gradually increasing through March due to the recurring coronal holes.

Sunspot numbers averaged 29.6 in February and the 10 cm flux averaged 82.9. Sunspot numbers are expected to bottom out in May 1996, solar flux in June 1996. The next peak is some time in 2000.

Canadian Special Prefixes for the WPX Contests.

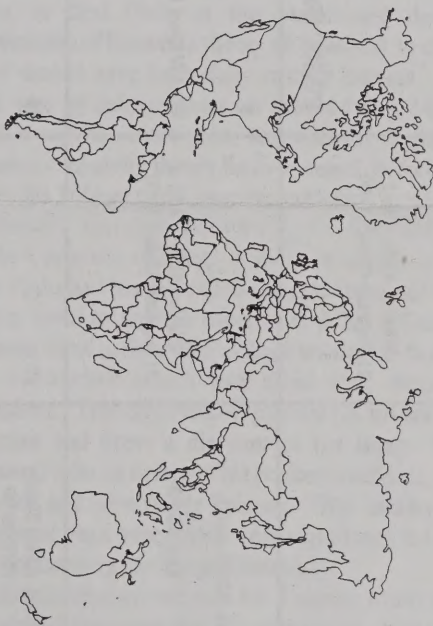
On February 10th, the Industry Canada Quebec Region gave permission for all Canadian Amateurs to use special prefixes to mark the 50th anniversary of the end of the Second World War in Europe. This is part of the "Canada Remembers" programme sponsored by the Department of Veterans Affairs. From 0000z March 25th through 2359z May 28th, Canadian Amateurs may use special prefixes as follows:

<u>Regular Special</u>	<u>Regular Special</u>	<u>Regular Special</u>	<u>Regular Special</u>
VA2 VX2	VE2 C12	VE5 C15	VE8 C18
VA3 VX3	VE3 C13	VE6 VX6	VE9 C19
VA7 VX7	VE4 C14	VE7 C17	VO1 X05
VE1 C11			VO2 X04
			VY1 XN5
			VY2 XN4

Sweden has created a new prefix for Novice operators (SH). The SH-licenses are issued for HF and VHF/UHF and authorize the holder to use up to 100 watts.

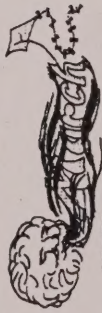
Andorra - Club members of the URA (Unio de Radiofacionals Andorrans) have permission to use a special prefix of C37 (normally C31) through the end of March.

COUNTRY	CALLSIGN:NAME	MODES	FREQUENCIES	DATES ACTIVE	MISC
Cambodia (XU)	XU95HA : Sany (XU7VK)	-	-	Events and Contests	QSL via HAOHW
Laos (XW)	XW2A and XW1BOD	CW	20 and 40 meters	1430-1700z, 2100-2230z, 2300-0100z	QSL XW1BOD @ JA2BOD and XW2A @ JA2EZD
Uganda	5X1MW : Paul (5Z4FO, W4PFM)	CW, SSB	All Bands (prefers lower)	July 1995 - July 1996	QSL via KB4EKY
Zambia (91)	912BO : Brian 912GA : George	CW (Brian), SSB (George)	1825 KHz, 10 and 15m 1847 KHz, 80 meters	400z, 1330-1545z 345-415z, 415-445z	



The DX Page

Compiled from KB8NW, OPDX
BARF-80 BBS



1995 - Communications Calendar

SUN	MON	TUE	WED	THUR	FRI	SAT
	February 1995 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28		1 Whitley ARES 19:15 21 Repeater Group 21:00	2 FWRC Board 19:30	3	4 Hunt ARES 20:00 ARRL Int'l DX SSB >
5 Swap net 19:00 Sloppy Code 21:00 < ARRL Int'l DX SSB Allen Co Foxhunt 13:30	6	7 Hunt. ARES 20:00 TNT 20:00	8 Whitley ARES 19:15 21 Repeater Group 21:00	9 W1AW Qual Run 00:00	10	11 Hunt. ARES 20:00
12 Swap Net 19:00 Sloppy Code 21:00 Wisconsin QSO Party >	13 < Wisconsin QSO Party	14 Hunt. ARES 20:00 TNT 20:00 CLARA HF Contest >	15 Whitley ARES 19:15 21 Repeater Group 21:00 < CLARA HF Contest	16	17 St Patricks Day FWRC Regular Meeting 19:30	18 Hunt. ARES 20:00 Alaska QSO Party > Bermuda Contest > Russian DX Contest > Virginia QSO Party > Marshall MI Hamfest
19 Swap Net 19:00 Sloppy Code 21:00 < Alaska QSO Party < Bermuda Contest < Russian DX Contest Maumee OH Hamfest	20 < Virginia QSO Party	21 Hunt. ARES 20:00 TNT 20:00	22 Whitley ARES 19:15 21 Repeater Group 21:00	23	24	25 Hunt. ARES 20:00 CQ WW WPX Phone >
26 Swap Net 19:00 Sloppy Code 21:00 < CQ WW WPX Phone	27	28 Hunt. ARES 20:00 TNT 20:00 W1AW Qual Run 9:00	29 Whitley ARES 19:15 21 Repeater Group 21:00	30	31	Michigan City Hamfest April 1995 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Check QST and CQ for Contest Times and Rules

(Times listed are in Eastern Standard Time GMT-5 hours)

[Key: > Event begins < Event ends]

NET FREQS: TNT 146.76 | Murphy Swap 146.94 | Sloppy Code 7.1405 | Huntington ARES 146.685 | Whitley ARES 147.150 | 21 Repeater Group 147.150

Daily Nets: Ft Wayne 6m 50.58 (simplex) 19:00 | IMO Traffic 146.88 18:30 | Auburn 147.360 18:00 | Foxtrot FM 29.100 19:00 | Mobile Ten SSB/CW 28.400 Saturday 19:00

Old Time Chatter - Ted Clifton W9TC

Book Review by W9TC:

DISTANT VISION
by Elma G Farnsworth
Published by Pemberly
Kent Publishers



Philo Farnsworth

The subject of this book is Philo Farnsworth "Father of Television". Philo was born the year of 1906 at Indiana Creek near Beaver, Utah in the log cabin built by his grandfather. His ancestors came from Denmark and cast their lot with the Mormons. When he was 8 years of age he was presented with a pony named Tippy to aid him in his job of caring for the live stock. Most of his early knowledge of electricity at that age was learned from the Sears, Roebuck Catalog.

In the year of 1919 the family moved to a 240 acre farm in the Snake River Valley near Rigby, ID. The ranch was powered by a Delco power system; which was of interest to Philo. In the attic of their new home, he found a stack of Radio, Popular Science and semi-technical magazines. In one magazine he found an article by Robert A Millikan stating why Einstein's theory of relativity was based on wrong principals. In the next issue of Science & Invention, Philo found an answer to Millikan's charges, an article written by Dr. Albert Einstein. Dr. Einstein's clear and simplified explanation of his theory hit a responsive chord in young Philo.

Philo was fascinated by the Delco System. None of the new owners was able to keep it running. This required expensive visits by a Wm. Tall, the man who installed it. One day it stopped again after a recent visit by Mr Tall. Uncle Albert lost his patience with the system. Twelve-year-old Philo offered to fix it. After much laughter, Philo's father said, "Why don't we give Philo a chance, Albert?" "What do we have to lose?". After cleaning it with kerosene, he replaced the heavy oil with a lighter weight oil. The problem was solved.

In the spring of 1921 at the age of 15 Philo was operating a single disc with two horses. He was thinking about a man named Braun who made a crude vacuum tube and was able to produce light by directing and electrical beam to a surface coated with photo sensitive material.

He also read that an electron beam could be manipulated in a magnetic field.

As he turned the horses for another row he looked back along the even rows he had made in the damp earth. A thought struck him like a bolt out of the blue! He could build the image like a page of print and paint the image line after line! With the speed of the electron, this could be done so rapidly the eye would view it as a solid picture! In later years he was to consider this inspiration the first major turn in the "guided tour" leading him to his "distant vision". He humbly acknowledged an influence beyond himself. He told his father and was advised to keep it quiet.

In September Philo entered High School. After signing up for all the science and math available, he tried to be admitted to the chemistry class. He was told the course was only available to seniors. He then spoke to the chemistry teacher asking if he could sit in the class. The teacher a Mr Justin Tolman gave in, thinking Philo would soon lose his interest. It soon became apparent that Philo had a better grasp of the subject than many of the seniors. Mr Tolman went to the principal and they decided to give Philo credit for the course.

Mr Tolman said he happened to walk by the study hall door to find Philo at the blackboard deep in an explanation of Einstein's theory of relativity to classmates who should have been deep in their lessons. Although this was an infringement on school rules, Mr Tolman said it was the most clear and concise explanation of Einstein's relativity theory he ever heard, before or since.

As Mr Tolman told it later, his curiosity was very much exercised. He knew there had to be something behind Philo's urgency to learn. It was not until late February that Philo had his television ideas to the point of talking about them to anyone except his father. One day Mr Tolman came to their after school session to find Philo at the blackboard which was filled with diagrams and equations. That day Philo explained his invention to Mr Tolman and drew a diagram of his Image Dissector (camera) tube on a page of his pocket notebook, which he tore out and gave to Mr Tolman. This incident and the notebook page years later were significant in the patent suit concerning the Image Dissector.

After his discussions with Mr Tolman, Philo was more convinced than ever that his approach to television was workable; he was equally convince that he needed much more education before he would be able to make his ideas work. High School was no longer sufficient for his needs - he was determined to start college as soon as possible.

Soon after the disclosure to Mr Tolman Philo left school to help his father with the spring planting. With the help of Philo and a hired man, they raised a bumper crop, and with the improved economy, they made enough profit to pay off the family debts.

During the summer he completed a correspondence course from the National Radio Institute to earn an electrician's license. He found a job as a junior electrician with the Oregon Short Line Railroad. With his first paycheck he signed up for four courses from the University of Utah correspondence school.

OTC - Philo Farnsworth (continued)

In 1922 the family moved to Provo. The next fall Philo joined them, however, at Provo's Brigham Young University (BYU) he was told he lacked credits in history and English to enter. He was enrolled as a specialist student to complete his HS credits. He was not allowed to take a physics course. In Jan. 1924 his father Lewis died and was buried in a cemetery three miles from their home.

Back in the University a kindly professor loaned him two books to read. As a Man Thinketh, by James Allen, and Ralph W. Emerson's Essays on Compensation. In, As a Man Thinketh, Philo found wisdom by far more precious, than diamonds or gold. From Emerson's laws of compensation he learned one gets out of life what one puts into life, no more, no less; and one must be to his own self true.

Upon finishing BYU and unable to find work, he joined the Navy, hoping to enroll in Annapolis. He passed the exam, second highest in the Nation or so he was told by his commanding officer, but by this time he decided Navy life was not for him. His mother pleaded "widow's hardship" and as the family breadwinner, he was given an honorable release. He returned to BYU, where he met his future wife.

At the age of 13 Philo had applied for an idea of a Vernier Dial. He mailed \$200 and drawings of the Dial to a patent attorney named O'Brian who advertised in Science and Invention Magazine. Later he received a letter from Mr O'Brian saying the idea was already patented. Later the Vernier Dial did appear on the market and it was exactly like Philo's drawings.

Soon after Philo married Pem they moved to L.A. A partnership was formed with George and Les (as they wished to be called). Their highest priorities was someone to build his Image Dissector tube. They obtained the services of a glassblower, and gave him the necessary materials and instructions. They found a hand-operated coil-winder. Not many days after receiving many packages, Pem answered the door bell to find two large policemen. They said "we've had a report that you are operating a still here.". Philo explained their setup. The spokesman relieved the situation by saying "Its okay, Joe; there ain't no still here." Later we learned they had indeed found a still in the area.

At last the day arrived when Philo was ready to test his idea. Making sure everything was ready he started the generator. There was a Bang! Pop! Sizzle! and smoke. Philo had not anticipated the large surge of power at the start up. I should have turned on the power before connecting the tubes. "hey," Les broke in, "Its not the end of the world! We still have Phil's idea. George is the fund raiser! You can scare up at least enough money to prove Phil's idea."

Several day's later George, Phil and Les appeared at the patent attorney's firm of Lyon & Lyon. A few days later they met again and Phil explained his idea to a Dr Matt Smith of Cal Tech. The Dr Smith exclaimed, "This is a monstrous idea! The daring of this young man's intellect."

The first attempt to obtain funds was turned down, when it was reported that Westinghouse held many television patents and probably controlled the entire art. George then approached Crocker Bank of San Francisco. The banker said. "Well, that's a dam fool idea, but someone should put some money in." Phil was then asked to explain his idea to several engineers. The bank agreed to fund the idea to the amount of \$25,000.00. The bank to own 60% and Phil 20% with the balance, 20% to George and Les.

A telegram was sent to Baker OR. advising Phil's brother-in-law Cliff Gardner they had a job for him. Their lab was (4' x 10') where they would attempt to build a Dissector Tube. Their first attempt at construction, ending in a failure. Lyons & Lyons advised Phil to prepare an immediate application for a patent which he did on 7 Dec. 1926 and received the #159,540.

This application contained language and novelty that signaled the beginning of electronic television as a technological and social reality. It issued on August 16th 1930, as patent number 1,773,980, a number many had cause to remember. In an interview some 50 years later, Samuel Smith, early patent attorney for RCA recited it from memory. Mr Smith said the patent office had no right to grant Farnsworth such broad claims.

The morning of 5 Sep. 1927, Phil performed the hydride operations on the new Dissector and sealed it off from the vacuum pump. Last minute changes were made in the ten-cycle-per-second sine wave generator. 7 Sept 1927 everyone standing around the receiver, Phil called to Cliff, who was in the next room with the Dissector setup. "Put in the slide Cliff," Phil called out, "OK its in. Can you see it?" Cliff called back - an unmistakable line appeared on the end of the Oscilite tube. "Turn the slide a quarter turn Cliff," "That's it folks! There you have electronic television." Phil announced as he hurried to the transmitter to give Cliff a chance to see this historic television. A wire was sent to Leo Gorrell in L.A. saying "the damned thing works!". Next they tried a triangle, then smoke from a cigarette.

Later the backers were given a demonstration. The first thing to be displayed was dollar sign Phil said the bankers would understand this sign. Their cost to date was forty thousand. The group agreed to give Phil another month to produce a picture.

From Phil's log on 3rd Mar. 1928: We gave a demonstration to Dr L. F. Fuller (UC of Berkeley) and Mr James Cranston of GE. Mr Cranston was greatly impressed with Phil's image analyzer. He used it for tremendous magnification. It was decided to make a disclosure of TV to the GE Company.

His log 7-12 May 1928: "We have been able to transmit a very good picture this week. A picture having 2500 elements can be transmitted quite well. At this point the backing syndicate decided the demonstration was good enough to impress any possible prospect. It suspended funds and closed the lab. George Everson convinced the backers that a continuously working demonstration was essential to find a buyer.